CLAIMS

What is claimed is:

1. A global, paperless, aircraft maintenance system comprising:

an aircraft performance means for detecting aircraft performance and control parameters;

a maintenance communications means, located on board an aircraft, for providing maintenance advice to maintenance personnel;

a sensor multiplexer receiver and transmitter means, located on board said aircraft, for:

accepting said aircraft performance and control parameters; converting said aircraft performance and control parameters, when necessary, to digital form; adding an aircraft identification and configuration label; converting said aircraft performance and control parameters and said identification and configuration label to an outgoing rf signal and broadcasting said outgoing rf signal; and

receiving an incoming rf signal, converting it to a maintenance advisory, and feeding said maintenance advisory to said maintenance communication means;

an aircraft manufacturer's database means for providing aircraft data and maintenance information;

a central station means, located on the ground, for receiving said outgoing rf signal and converting it to said aircraft performance and control parameters and said aircraft identification and configuration label, and broadcasting said incoming rf signal;

a processing means, connected to said central station means, for:

archiving said aircraft performance and control parameters thus creating an archived data database;

combining said aircraft performance and control parameters with said aircraft data and said maintenance information;

generating said maintenance advisories; and

converting said maintenance advisories to said incoming rf signal;

a display and control means, connected to said processing means, for displaying operation of said processing means and for allowing operator control of said processing means; and

a global rf communications network means for conveying said outgoing signal from said aircraft to said central station means and conveying said incoming rf signal from said central station means to said aircraft.

2. A global, paperless, aircraft maintenance system comprising:

an aircraft sensor, which detects aircraft performance and control parameters;

means, located on board an aircraft, for providing maintenance advice to maintenance personnel;

a sensor multiplexer receiver and transmitter, located on board said aircraft, which:

accepts said aircraft performance and control parameters; converts said aircraft performance and control parameters, when necessary, to digital form; adds an aircraft identification and configuration label; converts said aircraft performance and control parameters and said aircraft identification and configuration label to an outgoing rf signal and broadcasts said outgoing rf signal; and

receives an incoming rf signal, converts it to a maintenance advisory, feeds said maintenance advisory to said maintenance communication means;

an aircraft manufacturer's database for providing aircraft data and maintenance information;

a central station, located on the ground, which receives said outgoing rf signal and converts it to said aircraft performance and control parameters and said aircraft identification and configuration label, and broadcasts said incoming rf signal;

a processing means, connected to said central station means, for:

archiving said aircraft performance and control parameters thus creating an archived data database;

combining said aircraft performance and control parameters with the archived data, and said aircraft data and maintenance information;

generating said and maintenance advisories; and

converting said and maintenance advisories to said incoming rf signal;

a display and control subsystem, connected to said processing means,and

a global rf communications network which conveys said outgoing signal from said aircraft to said central station and conveys said incoming rf signal from said central station to said aircraft.

3. A method of providing global, paperless, aircraft maintenance advisories comprising the steps of:

mounting a performance sensor in an aircraft;

mounting a control sensor in said aircraft;

mounting a means in said aircraft, for providing maintenance advice to maintenance personnel;

mounting a sensor multiplexer receiver and transmitter system, in said aircraft;

providing communications access to an aircraft manufacturer's database;

providing a central ground based station;

providing a processing means within said central ground based station;

providing a display and control subsystem, connected to said processing means;

providing a global, rf communications network;

accepting signals from said aircraft performance and control sensors into said sensor multiplexer receiver and transmitter;

converting, in said sensor multiplexer receiver and transmitter, said signal from said aircraft performance and control sensors, when necessary, to digital form;

adding an aircraft identification and configuration label;

converting said signals, and aircraft identification and configuration label, in said sensor multiplexer receiver and transmitter, to an outgoing rf signal;

transmitting said outgoing rf signal from said sensor multiplexer receiver and transmitter to said central ground base station via said global rf communications network;

receiving said outgoing rf signal at said central ground based station;

converting said outgoing rf signal at said ground based central station to said signals plus said aircraft identification and configuration label;

performing within said processing means the steps of:

archiving said signals thus creating an archived data database;

combining said signals with the archived data, and information from said aircraft manufacturer's database;

generating maintenance advisories; and

converting said maintenance advisories to an incoming rf signal;

sending said incoming rf signal, via said global communications network, from said central ground based station to said sensor multiplexer receiver and transmitter;

converting said incoming rf signal, at said sensor multiplexer receiver and transmitter, to said maintenance advisories; and

feeding said maintenance advisory from said sensor multiplexer receiver and transmitter to said maintenance communication means.